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DEPARTMENTS.

SOLUTIONS OF PROBLEMS.

ARITHMETIC.

112. Proposed by G. B. M. ZERR, A.M., Ph.D., Professor of Mathematics and Science, Chester High School, Chester, Pa.

The cost of an article is $\$4.\frac{.\dot{2}9\dot{7}}{1.00\dot{3}}$. The selling price is $\$6.\frac{1000}{33337}$. What is the gain % ?

II. Solution by JOHN M. HOWIE, Professor of Mathematics, The Nebraska State Normal, Peru, Neb.

In the solution of the above in the August-September MONTHLY by Professors Schmitt and Zerr, the following statements are made :

$$.\dot{2}9\dot{7}=\frac{297}{999}=\frac{11}{37};\ 1.00\dot{3}=1\frac{1}{300}=\frac{301}{300}.\quad \frac{11}{37}\div\frac{301}{300}=\frac{3300}{11137};\ .\frac{3300}{11137}=\frac{330}{11137}.$$

It seems to me the statements are inconsistent.

$$\text{If } .\frac{3300}{11137}=\frac{300}{11137} \text{ then also } .\dot{2}9\dot{7}=.\frac{297}{999}=.\frac{11}{37}=\frac{11}{370}.$$

But if $.\dot{2}9\dot{7}=\frac{297}{999}=\frac{11}{37}$, then $.\frac{3300}{11137}=\frac{3300}{11137}$.

The latter I think to be correct.

The following solution seems to me to be correct :

$$.\dot{2}9\dot{7}=.\frac{297}{999}=.\frac{11}{37}=\frac{11}{37};\ 1.00\dot{3}=1\frac{1}{300}=\frac{301}{300}.\quad \frac{11}{37}\div\frac{301}{300}=\frac{3300}{11137};\ .\frac{3300}{11137}=\frac{3300}{11137}.$$

$$\therefore\ \$4.\frac{.\dot{2}9\dot{7}}{1.00\dot{3}}=\$4\frac{3300}{11137}=\$\frac{47848}{11137}=\text{cost price.}$$

$$\$6.\frac{1000}{33337}=\$6\frac{1000}{33337}=\$\frac{201022}{33337}=\text{selling price.}$$

$$\therefore\ \$\frac{201022}{33337}-\$\frac{47848}{11137}=\$\frac{17396574}{10034437}=\text{gain.}$$

$$\frac{17396574}{10034437}\div\frac{47848}{11137}=.40\frac{1901935}{5388881}=40\frac{1901935}{5388881}\%=\text{gain per cent.}$$

117. Proposed by MARCUS BAKER, U.S. Coast and Geodetic Survey, 1905 Sixteenth St., Washington, D.C.

A landed man two daughters had,
  And both were very fair;
He gave to each a piece of land,
  One round, the other square.

At twenty shillings an acre, just,
  Each piece its value had;
The shillings that did compass each,
  For it exactly paid.